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U. S. DEPARTMENT OF AGRICULTURE

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U. S. DEPARTMENT OF AGRICULTURE

MARKETING GUM NAVAL STORES

PHOTO SERIES NO. 34

MARCH 1959

Gum naval stores--gum spirits of turpentine and rosin--are obtained from pine forests covering about 30 million acres principally in north and west Florida and the southern portions of Georgia, Alabama, and Mississippi. The turpentine and rosin produced in these States supplies much of the world's needs for naval stores products. The U. S. Department of Agriculture provides an inspection service for naval stores under the Naval Stores Act of 1923, on a fee basis and under control regulations; also, a daily market news service on these commodities. Most of these pictures were taken in south Georgia, but several of the inspection photographs were obtained at USDA's Agricultural Marketing Service laboratory at New York.



N-26773--The pine tree is chipped or wounded by cutting a V-shaped notch in the sapwood with a special tool called a hack. Chipping usually is carried out on a bi-weekly schedule from the first of April through November.



N-26774--A "dip man" on a South Georgia turpentine farm collects crude pine "gum" or oleoresin obtained by chipping living pine trees. Gum flow is directed from the "face" resulting from repeated chipping, by means of metal strips or "gutters" into a cup hung on the tree.



N-26775--Pine gum is transferred from the "dip" buckets into barrels with removable heads, and moved from the woods in mule-drawn carts. The gum barrels are picked up by trucks and hauled to the distillation or processing plant.



N-26934--Small model of old style country fire still formerly used on turpentine farms in pine gum belt. Still was set in brick-work and direct fired. Gum was distilled as received from woods without pre-cleaning, resulting in lower grades of rosin.

Magazines and newspapers may obtain glossy prints of any of these photographs from the Photography Division, Office of Information, U. S. Department of Agriculture, Washington 25, D. C. Others may purchase prints (8 x 10) at \$1.00 each from the same address.



N-26756--This is a medium-sized modern gum distilling or processing plant at Valdosta, Ga. The shift from small country fire stills to central steam distillation plants began in 1934. Today practically all crude gum is processed at such plants.



N-26732--Gum trucks must use a ramp to get up to the upper or gum deck of the processing plant for unloading the barrels of gum.



N-26752--Another typical Georgia gum processing plant, showing ramp and unloading platform.



N-26725--Gum barrels being unloaded from truck at a processing plant. Each barrel is weighed as it comes off the truck, and again after being emptied, to determine the net weight of gum.



N-26726--A barrel of gum with removable head weighs about 550 to 575 pounds. Empty barrels weigh about 110 pounds. The so-called "standard barrel" of gum is a unit of 435 net pounds.



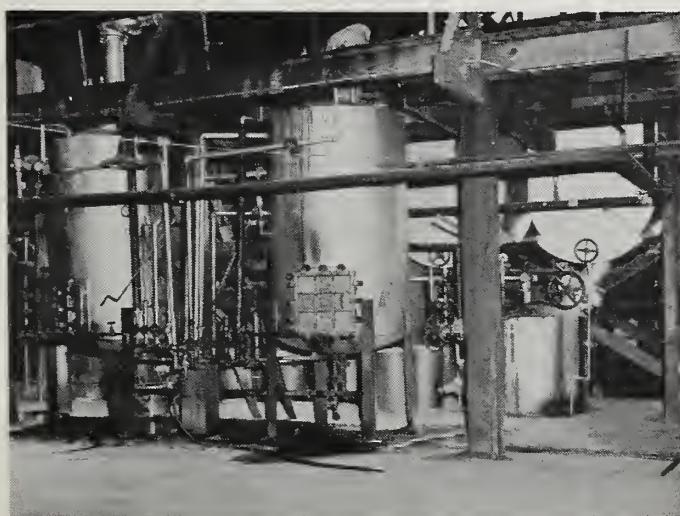
N-26730--Crude gum as delivered to the still contains appreciable quantities of water and trash, such as pine straw, bark, wood chips, and dirt. From a quick cursory examination the gum grader estimates the outturn of salable turpentine and rosin, as well as the probable color or grade of the rosin.



N-26729--Views on this page explain how we obtain crystal clear, waterwhite medicinal turpentine and bright yellow transparent rosin from the sticky, messy stuff we call pine gum.



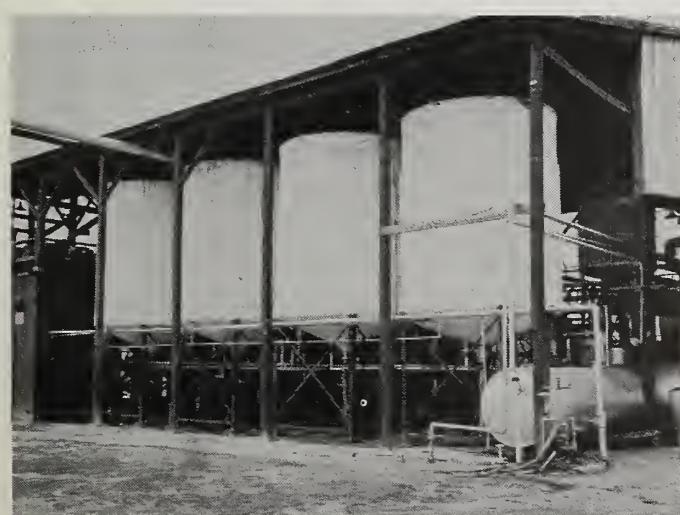
N-26727--Gum barrels are emptied by inverting over large steam-jacketed receiving vats. After barrels have drained for a while, a jet of steam into the inverted barrel removes any remaining gum.



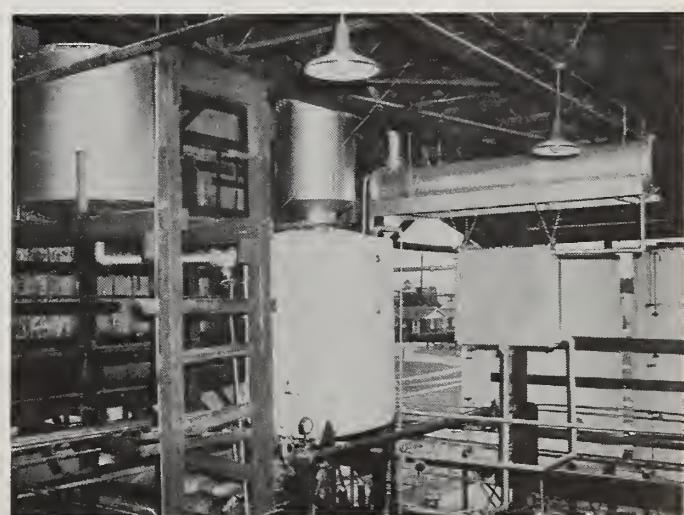
N-26758--Crude gum is drawn from bottom of vat (upper right) into a blowcase (lower right) to be melted under steam pressure. It then passes through a wire screen in bottom of melter tank (foreground), to remove coarse refuse (pine straw, bark, chips), which is then taken from melter through the square heavy door at bottom. Refuse is discarded or burned for fuel.



N-26762--From the melter the gum goes through a filter press where fine dirt is removed by multiple layers of special filter paper or cotton cloth.



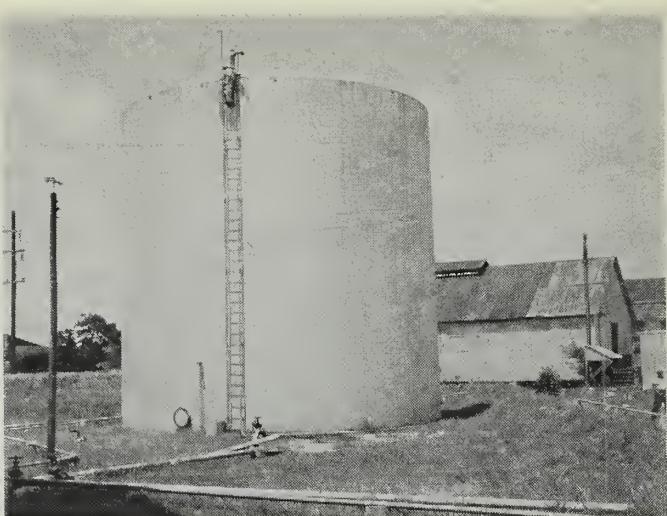
N-26757--A familiar sight at every gum processing plant is the battery of wash tanks in which the filtered gum receives a final washing with water to remove soluble impurities.



N-26764--Clean washed gum is pumped into measuring tank (upper left), from where it is drawn in batches into the insulated steam still (center). The turpentine vapors and steam pass through a still head (above still) before entering the horizontal water-cooled condensing system (right of still).



N-26760--Stiller examines condensed turpentine and water flowing from condenser. The proportion of turpentine to water, along with the thermometer showing temperature of boiling gum in still indicate the progress of the distillation and when batch is finished and ready to draw off rosin.



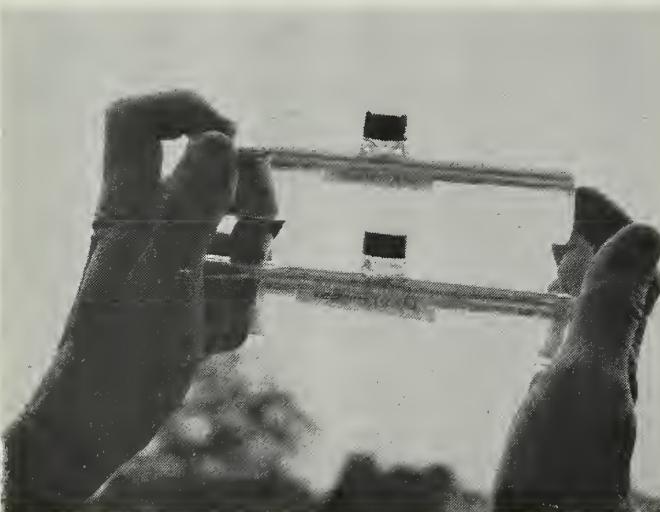
N-26937--Turpentine immediately separates from water, and is further "dried" by filtration through a bed of rock-salt. The turpentine is then pumped into a storage tank for later shipment.



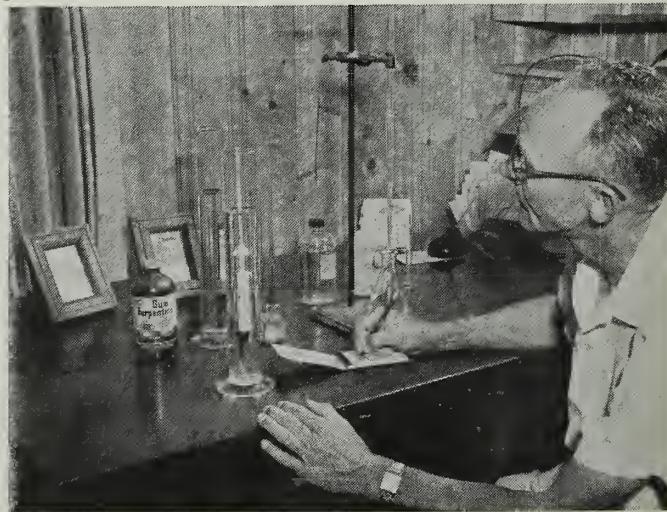
N-26939--The turpentine in storage tank must be regularly checked for temperature, volume and condition (freshness) before each shipment.



N-26936--After turpentine has passed inspection tests, it may be shipped in tank cars or tank trucks to domestic distributing points, or in drums or tank steamers to foreign markets.



N-26787--Two grades of turpentine, based on color, are recognized, and designated "Waterwhite" and "Standard." The standards for these grades are prepared in the Naval Stores Branch of AMS from aqueous solutions of platinum chloride in dilute hydrochloric acid.



N-26766--A Federal inspector is making laboratory tests on turpentine from storage tank to make certain that the odor, color, appearance, specific gravity and acidity conform with standard specifications for turpentine suitable for marketing under Government inspection certificate.



N-26720--The hot molten rosin is drawn from still into light steel drums filled on a platform scale. Drums weigh uniformly 534 pounds gross, and contain 517 net pounds of rosin.



N-26753--Hot rosin is also packed in multiwall paper bags, filled to contain exactly 100 pounds of rosin.



N-26739--A sample of hot rosin is being taken from a batch of filled drums, and poured into small mold. When cold, the sample is used to grade the rosin. Samples are taken from two drums of each batch.



N-26740--Close-up view showing rosin being poured into the mold to provide the grading sample, which must be 7/8-inch thick between parallel smooth faces.



N-26743--When the rosin has cooled and solidified, the sample is removed from mold and used by the inspector to grade the batch.



N-26747--Rosin grade samples showing batch number and grade. Markings (shown in inverted position) indicate rosin is top grade or WW (also known in the trade as Water-white).



N-26744--Rosin sample is graded on basis of color and appearance, by comparison with Official U. S. Standards made of glass, of which there are twelve to a set. The grade of the rosin is determined from the standard which the rosin equals or excels in color.



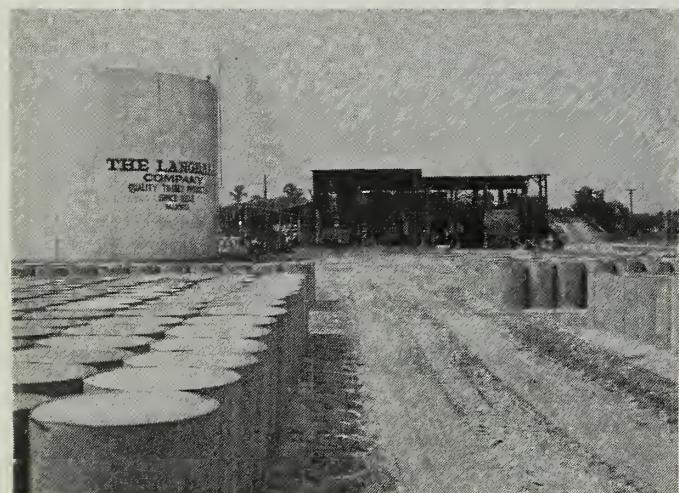
N-26745--The batch samples used by licensed inspector for grading the daily plant output are regularly checked by Federal supervising inspector to insure that all rosin has been properly graded.



N-26722--Rosin drums must stand undisturbed for at least 48 hours for rosin to cool and solidify. Drums are marked GUM ROSIN - U. S. GRADED, together with plant name, batch number, grade, and gross and net weight.



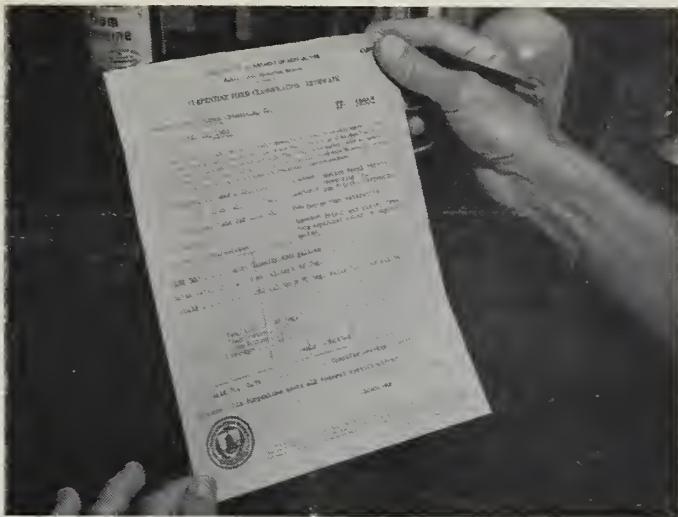
N-26754--Bags of rosin (also Government graded) are laid out on slab of concrete to cool and harden. After that, they must be stored under cover to prevent deterioration of the paper container.



N-26779--Drums of rosin that are not promptly shipped after inspection are stored out in the open on well-drained soil. The drums have been inverted to prevent rain water getting to the rosin and causing deterioration during long storage.



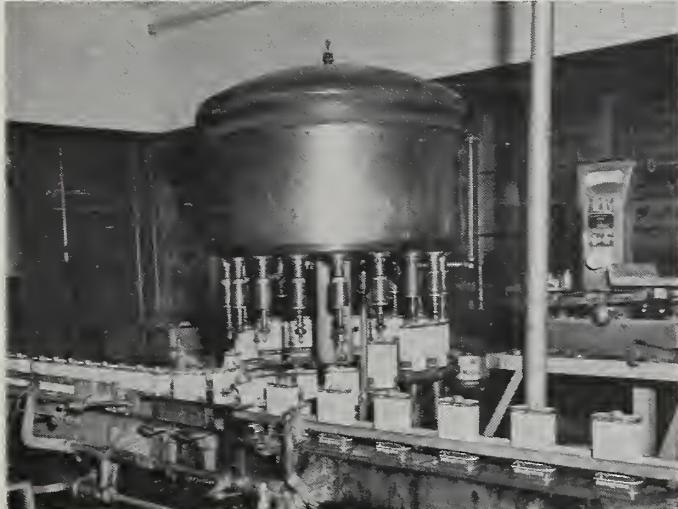
N-26734--View of rosin storage yard at Valdosta, Ga., showing Government-owned rosin stored for Commodity Credit Corporation. The rosin was originally tendered as collateral for loans to the producers in annual price-support programs.



N-26769--Turpentine loaded for shipment (tank car, drums, etc.) at processing plant will be officially certified at request of buyer or seller. The Federal certificate states kind, quality, grade and quantity of turpentine in the lot.



N-26784--Certified turpentine is often repacked in small retail containers, such as cans and bottles, by many distributors whose packing plants are also operated under a Federal inspection agreement.



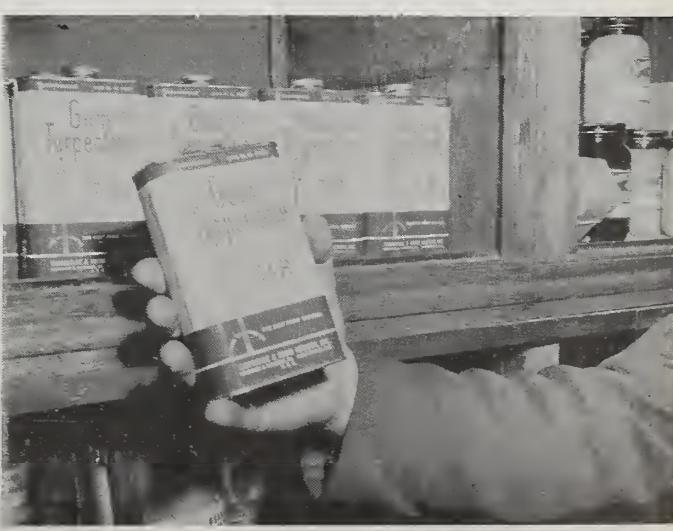
N-26780--Filler machine at authorized inspection packing plant filling small containers with inspected and certified turpentine.



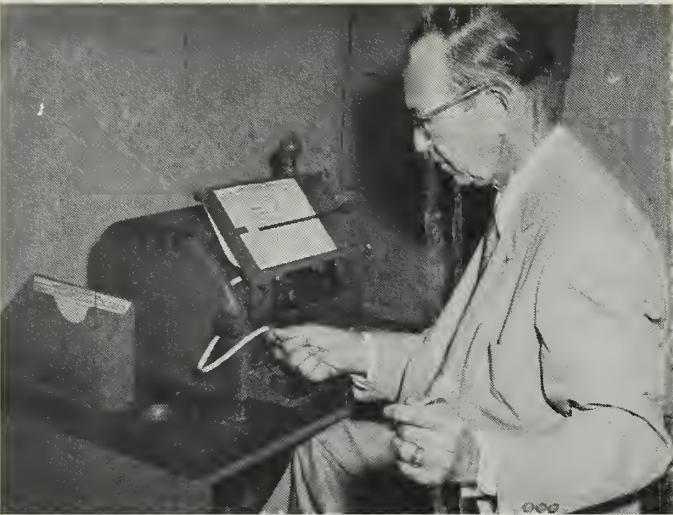
N-26782--Canned certified turpentine is being packaged in cartons at authorized inspection packing plant.



N-28538--The Naval Stores Act of 1923 authorizes Federal inspectors to sample turpentine shipped in commerce to insure purity and proper labeling in accord with Government standards.



N-28543--The small containers of turpentine on a dealer's shelf, including those packed under authorized inspection, may be checked from time to time to ascertain condition of contents and proper fill of the containers.



N-26966--Sales of gum turpentine and gum rosin by primary dealers and exporters throughout the country, if for shipment from Southeastern points of origin, are reported daily by wire and telephone to the Naval Stores Market News office at Savannah, Ga., and compiled into a daily market report.



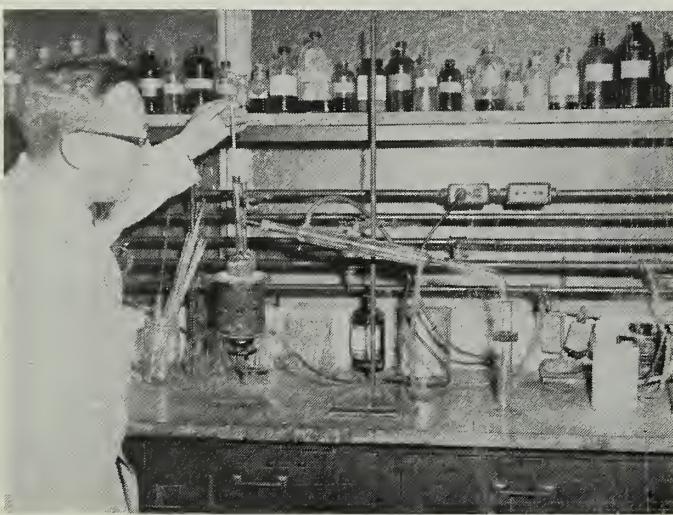
N-26969--The Daily Naval Stores Market Report goes out each afternoon over leased wires to the press and radio networks, and is mailed in mimeograph form, free of charge, to all persons having a bona fide interest in such information.



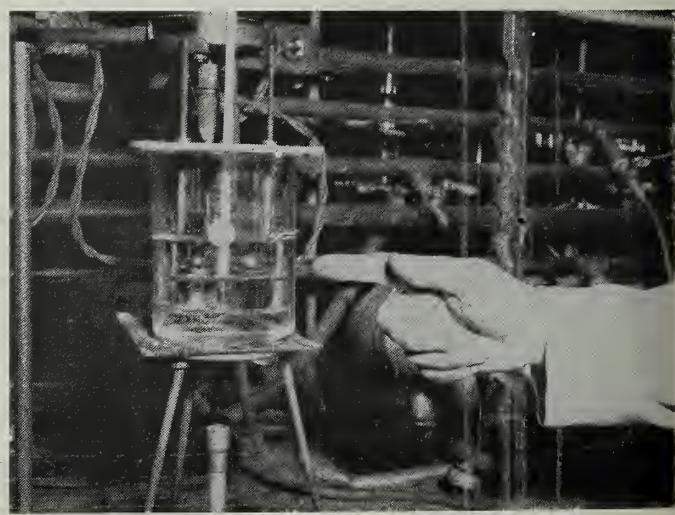
N-26971--The naval stores market reports also carry information on inquiries, foreign marketing situations, and other factors affecting the pricing of American turpentine and rosin. Such information is often obtained by direct contact with dealer-exporters.



N-26930--The last step in selling American turpentine and rosin in foreign markets is shown here, with drums of turpentine (in sling) and drums of rosin (already aboard) going onto a ship at Savannah, Georgia.



N-28530--Among the usual laboratory tests on turpentine is a distillation of a 100 ml. measured quantity from a glass flask. The initial boiling point and temperature range of the distillation indicate whether the turpentine is fresh, pure, and has normal evaporation rate.



N-28533--An important laboratory test on rosin is the softening (melting) point. In the apparatus shown, a steel ball is placed on the rosin sample molded in a small brass ring. The water in the beaker is slowly heated and the temperature recorded when ball has passed down through the rosin a distance of one inch.